L Number	Hits	Search Text	DB	Time stamp
7	2851	((436/144,149) or (422/80,88,94,98)).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/17 12:57
8	841	(((436/144,149) or (422/80,88,94,98)).CCLS.) and hydrogen	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/17 13:00
9	373	(73/19.1,19.12).CCLS.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/17 13:00
10	70	((73/19.1,19.12).CCLS.) and hydrogen	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/17 13:00
-	2	("6277329").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/17 12:52
-	1	"3661010".PN.	USPAT	2004/03/03 15:39
-	94	(dissolv$3 near2 hydrogen) with equilibr$4	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 16:43
-	1176	(dissolv$3 near2 hydrogen) and equilibr$4	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 16:38
-	114	((dissolv$3 near2 hydrogen) and equilibr$4) and (oxygen near3 remov$4)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 17:54
-	313	(measur$6 or defin$6 or estimat$6 or evaluat$6 or determin$6 or detect$5 or monitor$4 or screen$4 or control$4) near4 (dissolv$3 near2 hydrogen)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 17:53
-	73	((measur$6 or defin$6 or estimat$6 or evaluat$6 or determin$6 or detect$5 or monitor$4 or screen$4 or control$4) near4 (dissolv$3 near2 hydrogen)) and equilibr$4	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 16:52
-	2	("4454748").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 16:54
-	2	("4907440").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 16:54
-	2	("6235641").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 17:13
-	56741	(measur$6 or defin$6 or estimat$6 or evaluat$6 or determin$6 or detect$5 or monitor$4 or screen$4 or control$4) near4 hydrogen	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 17:54
-	1799	((measur$6 or defin$6 or estimat$6 or evaluat$6 or determin$6 or detect$5 or monitor$4 or screen$4 or control$4) near4 hydrogen) and (oxygen near3 remov$4)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 17:54

-	191	(((measur$6 or defin$6 or estimat$6 or evaluat$6 or determin$6 or detect$5 or monitor$4 or screen$4 or control$4) near4 hydrogen) and (oxygen near3 remov$4)) and (carrier near2 gas$3)	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 18:33
-	2	("5889195").PN.	USPAT; US-PGPUB; EPO; JPO; DERWENT	2004/03/03 18:33

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FILE 'CAPLUS' ENTERED AT 17:06:44 ON 03 MAR 2004
L1 173 (MEASUR? OR DEFIN? OR ESTIMAT? OR EVALUAT? OR DETERMIN? OR DETECT? OR MONITOR? OR SCREEN? OR CONTROL?) (4A) (DISSOLV? (2A) HYDROGEN)
L2 10 L1 AND EQUILIBR?
L3 9 ((MEASUR? OR DEFIN? OR ESTIMAT? OR EVALUAT? OR DETERMIN? OR DETECT? OR MONITOR? OR SCREEN? OR CONTROL?) (4A) HYDROGEN?) (S) (REMOV? (3A) OXYGEN)
L4 42 L1 AND OXYGEN?
L5 17 L1 AND ANAEROBIC
L6 0 L1 AND (REMOV? NEAR4 OXYGEN?)
L7 1 L1 AND (REMOV? (4A) OXYGEN?)
L8 6 L1 AND INTERFER?
L9 42 L1 AND OXYGEN
L10 10 L1 AND EQUILIBR?
L11 10 L1 AND REMOV?
L12 7 L1 AND CARRIER
L13 42747 (MEASUR? OR DEFIN? OR ESTIMAT? OR EVALUAT? OR DETERMIN? OR DETECT? OR MONITOR? OR SCREEN? OR CONTROL?)(3A) HYDROGEN
L14 1834 L13 AND INTERFER?
L15 86 L14 AND DISSOLV?

L2 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:611659 CAPLUS
DOCUMENT NUMBER: 135:185135
TITLE: Dissolved hydrogen analyzer
INVENTOR(S): Evans, Patrick J.
PATENT ASSIGNEE(S): Camp Dresser & McKee Inc., USA
SOURCE: U.S., 17 pp.
CODEN: USXXAM
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT NO. KIND DATE APPLICATION NO. DATE
---------- ---- -------- ---------- ------
US 6277329 B1 20010821 US 1999-273958 19990322
US 2001044154 A1 20011122 US 2001-885233 20010620
PRIORITY APPLN. INFO.: US 1999-273958 A3 19990322
AB The present invention provides apparatuses and processes for the measurement of hydrogen in aqueous solution at concns. as low as .apprx.0.1 nM. The present invention is capable of accurately and reproducibly measuring the concentration of dissolved hydrogen in an aqueous solution that also contains other dissolved gases, such as oxygen, carbon monoxide and sulfur compds., such as hydrogen sulfide. In a presently

preferred embodiment of a hydrogen analyzer of the present invention, water containing dissolved hydrogen is equilibrated with a carrier gas by gas flow through a mass transfer device. Carrier gas is equilibrated with hydrogen from the water within a gas equilibration volume and is then circulated, by a pump, through a circuit that includes a moisture removal component, an oxygen removal component and a heated carbon monoxide and sulfur compound removal component, which remove water, oxygen, carbon monoxide and sulfur compds. from the carrier gas without consuming or producing hydrogen. A sensor measures the amount of hydrogen in the carrier gas from which moisture, oxygen, carbon monoxide and sulfur compds. were removed.
REFERENCE COUNT: 30

L2 ANSWER 3 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:70679 CAPLUS
DOCUMENT NUMBER: 134:183137
TITLE: The bubble stripping method for determining dissolved hydrogen (H2) in well water
AUTHOR(S): McInnes, Daniel M.; Kampbell, Don
CORPORATE SOURCE: ManTech Environmental Research Services Corp., Ada, OK, 74820, USA
SOURCE: Field Analytical Chemistry and Technology (2000), 4(6), 283-296
CODEN: FACTFR; ISSN: 1086-900X
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The bubble stripping method was developed for use at field sites to measure the concentration of dissolved hydrogen (H2) in ground water. This information is useful in assessing the viability of employing monitored natural attenuation (MNA) as a strategy to influence the restoration of sites contaminated with chlorinated solvents. In laboratory studies, a reservoir containing water was employed to simulate a well. The system was constructed so that the concentration of dissolved H2 could be maintained at a constant level. The method was applied by pumping water from the reservoir into a sample cell, and then injecting 20 mL of nitrogen into the cell to produce a headspace (the bubble). Stripping was accomplished by pumping water through the cell, which produced agitation between the aqueous phase and the headspace. Pumping was continued for a length of time sufficient for dissolved H2 to partition between the two phases. Anal. of H2 in the headspace by gas chromatog. enabled the concentration of dissolved H2 in solution to be calculated using Henry's law. Two sample cell designs were compared the Microseeps Cell and the Chapelle Cell. Kinetics of equilibration studies were conducted with each cell, employing solution flow rates of 200, 300, and 400 mL/min, at 4 and 21°. The Microseeps Cell compared favorably with the Chapelle Cell with regards to kinetics of equilibration, with the added benefit of costing significantly less.
REFERENCE COUNT:

L2 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:511434 CAPLUS
DOCUMENT NUMBER: 133:182508

TITLE:"Determining dissolved hydrogen, methane, and vinyl chloride concentrations in aqueous solution on a nanomolar scale with the bubble strip method'
AUTHOR(S): *Kampbell, D. H.; Wilson, J. T.; McInnes, D. M.*
CORPORATE SOURCE: National Risk Management Research Laboratory, Subsurface Protection and Remediation Division, U.S. EPA, Ada, OK, 74820, USA
SOURCE: Proceedings of the Conference on Hazardous Waste Research: Bridging Gaps in Technology and Culture, Snowbird, UT, United States, May 18-21, 1998 (1998), 176-190. Editor(s): Erickson, Larry E.; Rankin, Mary M. Great Plains/Rocky Mountain Hazardous Substance Research Center, Kansas State University: Manhattan, Kans.
CODEN: 69AEFK
DOCUMENT TYPE: Conference
LANGUAGE: English
AB The bubble strip method was used to determine H, CH4, and vinyl chloride concns. in aqueous solution Information regarding concns. of these gases in groundwater is useful to monitor bioremediation and predict pollutant fate at given sites. Dissolved gas concns. gases on a nanomolar scale are measurable with this method. The method involves filling a gas sample bulb with the solution being analyzed, charging the bulb with a 20 mL headspace, then pumping the solution through the bulb over a length of time sufficient for equilibrium between phases to be attained. Subsequent gas chromatog. anal. of the sample bulb headspace enables dissolved gas concns. in solution to be calculated using Henry's law. Results indicated a solution flow rate of 400 mL/min through the sample bulb was optimum. A 20-min flow time was sufficient for equilibrium between phases to be established with aqueous solns. of H2 gas. With aqueous solns. of CH4 and vinyl chloride, equilibrium was attained within 10 min. A slightly longer time to equilibrium (.apprx.30 min) was observed with solns. of H2 gas at 4°. REFERENCE COUNT: 12

L2 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2000:314947 CAPLUS
DOCUMENT NUMBER: 132:328577
TITLE: "Method and system for dissolved gas concentration control in liquids, especially in semiconductor device manufacturing'
INVENTOR(S): *Christenson, Kurt K.*
PATENT ASSIGNEE(S): FSI International, Inc., USA
SOURCE: PCT Int. Appl., 45 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
PATENT NO. KIND DATE APPLICATION NO. DATE
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WO 2000026947 A1 20000511 WO 1999-US25581 19991029
US 6235641 B1 20010522 US 1998-183718 19981030
EP 1123561 A1 20010816 EP 1999-958723 19991029
JP 2003517718 T2 20030527 JP 2000-580237 19991029
PRIORITY APPLN. INFO.: US 1998-183718 A 19981030
WO 1999-US25581 W 19991029

AB Precise concns. of dissolved gases in liqs. are established and maintained by spray atomization of a liquid (e.g., ultrapure deionized water) into a gas blend (e.g., O2, HF, N2), where the gas mixture contains sufficient concentration of the desired gas to be in equilibrium with the desired concentration of the gas to be dissolved in the liquid, i.e. a "matched gas" to prepare a liquid admixt. containing the desired concentration of the gas. The method can be used to produce liquid admixts. containing precise amts. of dissolved gas suitable for use in applications with tight specifications, especially etching in semiconductor device fabrication. The system can be used to delivery the liquid admixt. to a point of use with substantially no loss of dissolved gas. REFERENCE COUNT: 2

L2 ANSWER 6 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:558566 CAPLUS
DOCUMENT NUMBER: 127:140072
TITLE: "Practical Considerations for Measuring Hydrogen Concentrations in Groundwater"
AUTHOR(S): *Chapelle, Francis H.; Vroblesky, Don A.; Woodward, Joan C.; Lovley, Derek R.*
CORPORATE SOURCE: U.S. Geological Survey, Columbia, SC, 29210, USA
SOURCE: **Environmental Science and Technology (1997), 31(10), 2873-2877**
CODEN: ESTHAG; ISSN: 0013-936X
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Several practical considerations to measure dissolved mol. H2 concns. in groundwater, including sampling methods, pumping methods, and effects of well casing materials were evaluated. Three different sampling methods (downhole sampler, gas-stripping method, and diffusion sampler) were compared. The downhole sampler and gas-stripping methods gave similar results when applied to the same wells. The diffusion sampler appeared to overestimate H2 concns. relative to the downhole sampler. Of these methods, the gas-stripping method is better suited to field conditions because it is faster (.apprx.30 min for a single anal. vs. 2 h for the downhole sampler or 8 h for the diffusion sampler); the anal. is easier (less sample manipulation is required); and data computations are more straightforward (H2 concns. need not be corrected for water sample volume). Measurement of H2 using the gas-stripping method can be affected by different pumping equipment. Peristaltic, piston, and bladder pumps all gave similar results when applied to water produced from the same well. However, it was obsd.that peristaltic-pumped water (which draws water under a neg. pressure) enhanced the gas-stripping process and equilibrated slightly faster than either piston or bladder pumps (which push water under a pos. pressure). A dc elec. driven submersible pump produced H2 and was not suitable to measure H2 in groundwater. Measurements from 2 field sites indicated that iron or steel well casings produce H2, which masks H2 concns. in groundwater. PVC-cased wells or wells cased with other materials that do not produce H2 are necessary to measure H2 concns. in groundwater.

L2 ANSWER 8 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1989:624230 CAPLUS

DOCUMENT NUMBER: 111:224230
TITLE: "HyDRAL: a new and simple technique for in-line analysis for hydrogen in aluminum alloys"
AUTHOR(S): *Martin, J. P.; Tremblay, F.; Dube, G.*
CORPORATE SOURCE: Arvida Res. Dev. Cent., Alcan Int. Ltd., Jonquiere, QC, G7S 4K8, Can.
SOURCE: **Light Metals (Warrendale, PA, United States) (1989) 903-12**
CODEN: LMPMDF; ISSN: 0147-0809
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The control of dissolved hydrogen levels in molten Al alloys is an integral step in meeting quality control requirements in the cast shop. However, most anal. techniques presently available are restricted to time-consuming laboratory procedures or semi-quant. shop floor instrumentation; only the Telegas technique, developed in the 1950s, can monitor hydrogen levels in-line with acceptable accuracy, but many shortcomings inherent to its probe design (including high cost and mech. fragility) have severely curtailed its use. A new, simple probe, also based on the gas/liquid equilibrium technique (closed-loop gas recirculation), is described; designed for shop floor use, the probe is rugged, inexpensive and provides excellent anal. performances. A short description of a new analyzer (with thermal conductivity detector), designed to take advantage of this new probe, is also included. Finally, results obtained under actual production conditions, for a number of alloys, are reported.

L2 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1985:214349 CAPLUS
DOCUMENT NUMBER: 102:214349
TITLE: "Method and apparatus for measuring dissolved gas concentrations"
INVENTOR(S): *Kitamura, Masao; Nakayama, Norio; Katsura, Ryoei; Ibe, Hidefumi; Uchida, Shunsuke*
PATENT ASSIGNEE(S): Hitachi, Ltd. , Japan; Hitachi Engineering Co., Ltd.
SOURCE: Eur. Pat. Appl., 35 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 122511	A2	19841024	EP 1984-103230	19840323
EP 122511	A3	19850731		
EP 122511	B1	19880803		
JP 59174748	A2	19841003	JP 1983-48646	19830325
JP 04073095	B4	19921119		
CA 1210065	A1	19860819	CA 1984-450218	19840322
US 4578154	A	19860325	US 1985-746010	19850619

PRIORITY APPLN. INFO.: JP 1983-48646 19830325 US 1984-592801 19840323
AB An electrochem. apparatus is described for the simultaneous determination of dissolved O and H in core water at a high temperature and high pressure in light water- or

heavy water-moderated nuclear reactors. The gases are readily determined in one and same membrane-type O meter by using a membrane producing an overlapped potential region where a potential region for an oxidation limiting current plateau is overlapped with that for a reduction limiting current plateau between the 2 dissolved gas components, and applying, between a pair of an electrode and a counter-electrode, a more pos. potential than the equilibrium potential for oxidation-reduction reaction of one of the two dissolved gas components principally, thereby measuring a current generated between the electrodes, and a more neg. potential than the equilibrium potential for oxidation-reduction reaction of the other dissolved gas component, when desired, thereby measuring a current generated between the electrodes, and quant. determining a concentration of the first dissolved gas component from the latter current quantity and quant. determining a concentration of the other dissolved gas component from a difference between the 2 current quantities.

L3 ANSWER 1 OF 9 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1994:637996 CAPLUS
DOCUMENT NUMBER: 121:237996
TITLE: Removal of dissolved oxygen from water
INVENTOR(S): Kawada, Kazuhiko
PATENT ASSIGNEE(S): Organo Kk, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 4 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
PATENT NO. KIND DATE APPLICATION NO. DATE
--- --- --- --- ---
JP 06121990 A2 19940506 JP 1992-273128 19921012
JP 3009789 B2 20000214
PRIORITY APPLN. INFO.: JP 1992-273128 19921012
AB In removal of dissolved O (DO) from water by dissoln. of H gas in water via gas-permeable membrane followed by DO removal by contacting with Pd catalysts; the pressure of H gas supplement is controlled to be lower than the atmospheric pressure. The method is useful for treatment of boiler water and in ultrapure water preparation

L4 ANSWER 1 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Methods for identifying an agent that inhibits oxygen-dependent hydrogen peroxide formation activity but does not inhibit superoxide-dependent hydrogen peroxide formation

L4 ANSWER 2 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Production of fused silica glass with specific dissolved- hydrogen content by controlling hydrogen pressure in the furnace

L4 ANSWER 3 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Metal/metal oxide sensor apparatus and methods regarding same

L4 ANSWER 4 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Electrochemical noise analysis of cathodically polarised AISI 4140 steel. II. Identification of potential fluctuation sources for unstressed electrodes

L4 ANSWER 5 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Microbial degradation of PAHs under various redox conditions at a creosote-contaminated site
L4 ANSWER 6 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Natural attenuation of chlorinated volatile organic compounds in ground water at Area 6, Naval Air Station Whidbey Island, Washington
L4 ANSWER 7 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Dissolved hydrogen analyzer
L4 ANSWER 8 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Method and system for dissolved gas concentration control in liquids, especially in semiconductor device manufacturing
L4 ANSWER 9 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Study on hydrogen diffusivity in zirconium oxide
L4 ANSWER 10 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Sensor probe for measurement of dissolved hydrogen in melted metal
L4 ANSWER 11 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Role of mass transfer on hydrogen evolution in aqueous media
L4 ANSWER 12 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Dynamic determination of anaerobic acetate kinetics using membrane mass spectrometry
L4 ANSWER 13 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Water chemistry control in BWR reactor loop
L4 ANSWER 14 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Evidence for surface changes during ennoblement of type 316L stainless steel: dissolved oxidant and capacitance measurements
L4 ANSWER 15 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Apparatus for calibrating an apparatus for measuring dissolved gas
L4 ANSWER 16 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Probe for amperometric measurement of dissolved hydrogen
L4 ANSWER 17 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Sensors for determining hydrogen dissolved in molten metals
L4 ANSWER 18 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Sensors for determining hydrogen dissolved in molten metals
L4 ANSWER 19 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Sensors for determining hydrogen dissolved in molten metals
L4 ANSWER 20 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Sensors for determining hydrogen dissolved in molten metals
L4 ANSWER 21 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Sensors for determining hydrogen dissolved in molten metals
L4 ANSWER 22 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI History of developments of electrochemical systems in JSB
L4 ANSWER 23 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Studies on dissolved hydrogen behavior in autotrophic culture of Alcaligenes entrophus ATCC 17697
L4 ANSWER 24 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Development of a dissolved hydrogen sensor and its application to evaluation of hydrogen mass transfer

L4 ANSWER 25 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Behavior of a sensor element using lanthanum trifluoride single crystal in aqueous solution

L4 ANSWER 26 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Method for determination of hydrogen dissolved in liquids involving an oxidation catalyst

L4 ANSWER 27 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Chromatographic determination of gases dissolved in water

L4 ANSWER 28 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Method and apparatus for measuring dissolved gas concentrations

L4 ANSWER 29 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Dissolved-oxygen meter

L4 ANSWER 30 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Electrochemical techniques for monitoring dissolved carbon, hydrogen and oxygen in liquid sodium

L4 ANSWER 31 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI A continuous in situ method for the measurement of dissolved hydrogen in high-temperature aqueous systems

L4 ANSWER 32 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Monitors for determining hydrogen peroxide and dissolved oxygen concentrations in nuclear reactor coolant water

L4 ANSWER 33 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Continuous mass spectrometric measurement of dissolved hydrogen, oxygen, and carbon dioxide during chemolithoautotrophic growth of Alcaligenes eutrophus strain H 16

L4 ANSWER 34 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Determination of dissolved hydrogen concentration during cultivation and assimilation of gaseous substrates by alcaligenes hydrogenophilus

L4 ANSWER 35 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Continuous measurement of dissolved molecular hydrogen, molecular oxygen and carbon dioxide during chemolithotrophic growth of Alcaligenes eutrophus H 16

L4 ANSWER 36 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Regular testing can control hydrogen sulfide

L4 ANSWER 37 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Gas chromatographic determination of dissolved hydrogen and oxygen in photolysis of water

L4 ANSWER 38 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Studies on the interaction of dissolved oxygen and hydrogen in dilute solution in liquid sodium

L4 ANSWER 39 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Continuous quantitative determination of oxygen, hydrogen, and nitrogen dissolved in water

L4 ANSWER 40 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN

TI Temperature-compensated electrochemical cell

L4 ANSWER 41 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Polarometric determination of oxygen and hydrogen peroxide dissolved in water
L4 ANSWER 42 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
TI Bivalent chromium salts. IV. Determination of persulfate, hydrogen peroxide, and dissolved oxygen in water

L4 ANSWER 10 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1999:490138 CAPLUS
DOCUMENT NUMBER: 131:153166
TITLE: "Sensor probe for measurement of dissolved hydrogen in melted metal"
INVENTOR(S): *Koide, Kunihiro*
PATENT ASSIGNEE(S): Tokyo Yogyo Co., Ltd., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
PATENT NO. KIND DATE APPLICATION NO. DATE
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JP 11211717 A2 19990806 JP 1998-11620 19980123
PRIORITY APPLN. INFO.: JP 1998-11620 19980123
AB The title sensor is characterized by having a plug-in cover for the sensor body and making no direct contact of the sensing element with the melted metal sample during the measurement. The device comprises a hollow body having an opening at the sample contact end, a gas permeable cover embedded at the body opening which prevents the melted metal sample from flowing into the sensor body, and a measurement H gas chamber and a standard H gas chamber inside the sensor hollow space. The H concentration in the melted metal sample is determined by the measurement of elec. potential due to the differential partial pressure of H in the measurement and the standard gas chamber.

L4 ANSWER 11 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:57141 CAPLUS
DOCUMENT NUMBER: 128:160281
TITLE: "Role of mass transfer on hydrogen evolution in aqueous media"
AUTHOR(S): *Riegel, H.; Mitrovic, J.; Stephan, K.*
CORPORATE SOURCE: Institut Technische Thermodynamik Thermische Verfahrenstechnik, Universitat Stuttgart, Stuttgart, 70550, Germany
SOURCE: **Journal of Applied Electrochemistry (1998), 28(1), 10-17**
CODEN: JAELBJ; ISSN: 0021-891X
PUBLISHER: Chapman & Hall
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The process of hydrogen evolution during alkaline electrolysis of aqueous solns. is governed by mass transfer, growth of hydrogen bubbles and removal of hydrogen from the cathode. Two mechanisms are decisive for hydrogen removal: (i) hydrogen dissolved in the solution is carried off from the cathode surface by diffusion and convection, and

(ii) gas bubbles are transported by a two-phase flow. The paper describes expts. to determine the local concentration of dissolved hydrogen and the void fraction of hydrogen bubbles in aqueous solns. Measurements were performed in a flow channel by varying the height of the cathode (40-400 mm), the c.d. (up to 6250 A m-2) and the mean velocity of the electrolyte (up to 0.95 m s-1). Two operating regimes of the electrolyzer are found. At high current densities a back flow is observed leading to an increase in the electrolyte resistance. Traces of dissolved oxygen are detected at high current densities. At low current densities the two-phase flow is confined to a thin layer along the cathode surface, the concentration of dissolved hydrogen being small.
REFERENCE COUNT: 30

L4 ANSWER 12 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1998:6990 CAPLUS
DOCUMENT NUMBER: 128:101129
TITLE: Dynamic determination of anaerobic acetate kinetics using membrane mass spectrometry
AUTHOR(S): Meyer, B.; Heinzle, E.
CORPORATE SOURCE: Chemical Engineering Department, Swiss Federal Institute of Technology (ETH), Zurich, CH-8092, Switz.
SOURCE: Biotechnology and Bioengineering (1998), 57(2), 127-135
CODEN: BIBIAU; ISSN: 0006-3592
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A small, stirred, 14.4-mL tank reactor was designed to serve as a measurement cell for short-term investigation of microbial kinetics. A mass spectrometer membrane probe allowed the measurement of the dissolved gases of hydrogen, methane, oxygen, and carbon dioxide. pH was measured by an electrode and controlled by addition of acid or alkali. The highly sensitive measurement of gases with low solubility allowed rapid measurements at very low conversion. In kinetic expts., a stepwise increase of substrate concentration (method A) and continuous feed of substrate (method B) were used, allowing quick estimation of substrate kinetics. Acetate conversion in mixed culture biofilms from a fluidized bed reactor was investigated. Substrate inhibition was found to be negligible in the concentration range studied. Expts. at various pH values showed that the undissociated acid form was the kinetic determinant. Kinetic parameters for Haldane kinetics of protons were KSH = 1.3+10-5 mol m3 and KIH = 8.1+10-3 mol m-3. With free acid (HAc) as the rate determining species, the kinetic parameters for method A were KSHAc = 0.005 mol m-3 and KIHAc = 100 mol m-3 and for method B were KSHAc = 0.2 mol m-3 and KIHAc = 50 mol m-3. The maximum biomass activity occurred at around pH 6.5. Acetate was exclusively converted to methane and C02 at pH > 6. REFERENCE COUNT: 37

L4 ANSWER 15 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:664535 CAPLUS
DOCUMENT NUMBER: 125:287306
TITLE: Apparatus for calibrating an apparatus for measuring dissolved gas

INVENTOR(S): Akazawa, Shinichi; Goto, Mitsuru; Kato, Toshiko; Narasaki, Naomi
PATENT ASSIGNEE(S): Denki Kagaku Keiki Kk, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 8 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08211010	A2	19960820	JP 1995-39079	19950203

PRIORITY APPLN. INFO.: JP 1995-39079 19950203

AB The apparatus for the calibration is equipped with a filter, a sample solution flow path and a cathodic chamber, an anode which contacts with the filter and is arranged in the sample solution flow path, a cathode in the cathodic chamber, and a means for supplying an electrolyte for generating an electrolytic solution in the cathodic chamber. The cathode and the anode is elec. connected by the electrolytic solution between them. Elec. current is passed between the anode and the cathode, thereby a solution which flows in the solution flow path is electrolyzed and the gas thus generated is mixed with the flowing solution and the thus formed calibration solution is supplied to the apparatus A calibration solution can be prepared using a simple mechanism and the calibration of a measuring apparatus can be conducted with high precision.

L4 ANSWER 16 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:610085 CAPLUS
DOCUMENT NUMBER: 125:237100
TITLE: Probe for amperometric measurement of dissolved hydrogen
INVENTOR(S): Schill, Natascha; Comninellis, Christos; von Stockar, Urs
PATENT ASSIGNEE(S): Switz.
SOURCE: Patentschrift (Switz.), 5 pp.
CODEN: SWXXAS
DOCUMENT TYPE: Patent
LANGUAGE: French

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
CH 686980	A	19960815	CH 1993-3816	19931221

PRIORITY APPLN. INFO.: CH 1993-3816 19931221

AB A probe for amperometric measurement of dissolved hydrogen dissolved in a liquid contains an Pt indicating electrode and a metallic pseudoref. electrode, constituted of, preferably, Ag or Hg, with a deposit of oxide on the pseudoref. electrode, preferably, Ag2O or AgO. The probe is filled with a neutral or basic electrolyte solution nonsusceptible to deactivating the indicating electrode or undergoing an electro-oxidation, such as solns. of KOH or K2SO4. The hydrogen probe can be realized from a Clark-type oxygen probe.

L4 ANSWER 17 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:287951 CAPLUS
DOCUMENT NUMBER: 124:305879

TITLE: "Sensors for determining hydrogen dissolved in molten metals"
INVENTOR(S): *Yajima, Tamotsu*
PATENT ASSIGNEE(S): Tokyo Yogyo Kk, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08029378	A2	19960202	JP 1994-160339	19940712
JP 2878603	B2	19990405		

PRIORITY APPLN. INFO.: JP 1994-160339 19940712

AB The title sensor has (1) a solid electrolyte component made of a proton-conductive solid electrolyte, (2) a reference electrode and a hydrogen-determining electrode in the solid electrode component, (3) a reference substance which gives a standard electromotive force for a concentration cell with respect to the reference electrode, (4) an insulating sleeve fixed at the solid electrolyte component and forming a space connecting to the hydrogen-determining electrode, and (5) a first filler layer made of ceramic powders or fibers filled at the side of the hydrogen-determining electrode in the space and a second filler layer connected elec. to the hydrogen-determining electrode made of elec. conductive powders or fibers filled at the side opposite to the hydrogen-determining electrode. The ceramic powders or fibers are <SYM179>1 selected from alumina, zirconia, magnesia, and silicon carbide and the elec. conductive powders or fibers are either carbon or a metal. The reaction of hydrogen-determining electrodes with molten metal and corrosion of hydrogen-determining electrodes can be suppressed, thus the service life of the sensors is lengthened.

L4 ANSWER 21 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1996:205372 CAPLUS
DOCUMENT NUMBER: 124:249111
TITLE: Sensors for determining hydrogen dissolved in molten metals
INVENTOR(S): Yajima, Tamotsu
PATENT ASSIGNEE(S): Tokyo Yogyo Kk, Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 6 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 08029379	A2	19960202	JP 1994-163910	19940715

PRIORITY APPLN. INFO.: JP 1994-163910 19940715

AB The title sensor comprises (1) a solid electrolyte component made of a proton-conductive solid electrolyte material, (2) a reference electrode and a hydrogen-determining electrode installed at the solid electrolyte component, (3) a reference substance which provides a standard for the electromotive force of a concentration cell with respect to the reference electrode, (4) a sleeve fixed at the solid electrolyte

component and forms a space connecting the hydrogen-determining electrode, (5) a ceramic powders or fibers filled in the space, and (6) a metallic cap to plug the end of the sleeve, and the metallic cap can be melted by the temperature of the molten metals to be measured. The metallic cap is formed by <SYM179>1 of metal selected from Zn, Al, Mg, Cu, Fe, Ti, Mn, and Ni or their alloy. Remarkable deterioration of the sensors by oxides, nonoxides, fluxes, and slugs and deterioration of response can be avoided, thus the service life of the sensors can be lengthened.

L4 ANSWER 24 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1993:648047 CAPLUS
DOCUMENT NUMBER: 119:248047
TITLE: "Development of a dissolved hydrogen sensor and its application to evaluation of hydrogen mass transfer"
AUTHOR(S): *Takeshita, Toshihiro; Tanaka, Kenji; Ishizaki, Ayaaki; Stanbury, Peter F.*
CORPORATE SOURCE: Fac. Agric., Kyushu Univ., Fukuoka, 812, Japan
SOURCE: **Journal of Fermentation and Bioengineering (1993), 76(2), 148-50**
CODEN: JFBIEX; ISSN: 0922-338X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The partial pressure of dissolved hydrogen was measured by a dissolved hydrogen sensor constructed by modifying a Clark-type dissolved oxygen probe. Using this sensor, the overall volumetric coefficient of hydrogen mass transfer, (KLa)H2, was determined in the culture system and compared with that of oxygen, (KLa)O2biol. Good straight line relationships were demonstrated between (i) ln(KLa)O2biol. and ln(KLa)O2sul. (KLa for oxygen determined by sulfite oxidation) and (ii) ln(KLa)O2biol. and ln(KLa)H2.

L4 ANSWER 26 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1989:416886 CAPLUS
DOCUMENT NUMBER: 111:16886
TITLE: Method for determination of hydrogen dissolved in liquids involving an oxidation catalyst
INVENTOR(S): Gaehrs, Hans Jasper
PATENT ASSIGNEE(S): Messer Griesheim G.m.b.H., Fed. Rep. Ger.
SOURCE: Eur. Pat. Appl., 4 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: German

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 310053	A2	19890405	EP 1988-116049	19880929
EP 310053	A3	19900725		
DE 3732888	A1	19890420	DE 1987-3732888	19870930

PRIORITY APPLN. INFO.: DE 1987-3732888 19870930
AB A method is described, where a component current of the liquid is taken, O is mixed with the stream, and the mixture is conducted over an oxidation catalyst. The amount of O in the O stream before the mixture and in the mixture after the catalyst is measured,

and from this O difference, the portion of gas dissolved in the liquid is determined In this way, a method is created, where the concentration of H can be measured rapidly and accurately in a reliable and reproducible fashion.

L4 ANSWER 30 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1982:624844 CAPLUS
DOCUMENT NUMBER: 97:224844
TITLE: Electrochemical techniques for monitoring dissolved carbon, hydrogen and oxygen in liquid sodium
AUTHOR(S): Hobdell, M. R.; Smith, C. A.
CORPORATE SOURCE: Berkeley Nucl. Lab., CEGB, Berkeley, GL13 9PB, UK
SOURCE: Journal of Nuclear Materials (1982), 110(2-3), 125-39
CODEN: JNUMAM; ISSN: 0022-3115
DOCUMENT TYPE: Journal; General Review
LANGUAGE: English
AB A review with 98 refs. is given on the monitoring of impurities in LMFBR coolant.

L4 ANSWER 31 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1981:468517 CAPLUS
DOCUMENT NUMBER: 95:68517
TITLE: "A continuous in situ method for the measurement of dissolved hydrogen in high-temperature aqueous systems"
AUTHOR(S): *Macdonald, Digby D.; McKubre, Michael C. H.; Scott, Arthur C.; Wentrcek, Paul R.*
CORPORATE SOURCE: Mater. Res. Lab., SRI Int., Menlo Park, CA, 94025, USA
SOURCE: **Industrial & Engineering Chemistry Fundamentals (1981), 20(3), 290-7**
CODEN: IECFA7; ISSN: 0019-7874
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A temperature-compensated Pd resistance probe was developed for in situ monitoring of the concentration of H in aqueous systems at elevated temps. The performance of the probe was studied in 0.1 m B(OH)3 at 275° and for H concns. of 0-1.5 ppm. In the absence of a high concentration of O, the probe exhibits a fast response for H absorption but a slow response for desorption. Prior exposure of the probe to oxygenated water, however, reverses this relation in that absorption tends to be slow or exhibits an induction period and desorption is rapid. The effect of O is discussed in terms of a model that assumes a surface process to be rate-controlling for the absorption/desorption behavior of H in Pd.

L4 ANSWER 34 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1979:506528 CAPLUS
DOCUMENT NUMBER: 91:106528
TITLE: "Determination of dissolved hydrogen concentration during cultivation and assimilation of gaseous substrates by alcaligenes hydrogenophilus"
AUTHOR(S): *Ohi, Kiyomoto; Nishimura, Takashi; Okazaki, Mitsuo; Miura, Yoshiharu*
CORPORATE SOURCE: Fac. Pharm. Sci., Osaka Univ., Suita, 565, Japan

SOURCE: **Journal of Fermentation Technology (1979), 57(3), 203-9**
CODEN: JFTED8; ISSN: 0385-6380
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Dissolved H2 concentration in the culture medium was determined by the tubing method during the cultivation of H2 bacteria. Dissolved H2 which diffused through the membrane of the tube was determined by gas chromatog. The rate of H2 assimilation by H2 bacteria followed Monod's equation. The saturation constant for H2, determined in batch culture, was 7.4 + 10-6M. Cell yield for H2 consumed was 2.9 g cell/mol H2 under batch culture. The rate of O2 uptake or assimilation also followed Monod's equation. The saturation constant for O2 was 4.1 + 10-6M. Cell yield for O2 consumed was 6.5 g cell/mol. The apparent saturation constant for dissolved CO2 and HCO3- was 4.0 + 10-6M and the cell yield for CO2 was 24.0 g cell/mol. The energy conversion and gas utilization ratio are also discussed.

L4 ANSWER 38 OF 42 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1977:196591 CAPLUS
DOCUMENT NUMBER: 86:196591
TITLE: Studies on the interaction of dissolved oxygen and hydrogen in dilute solution in liquid sodium
AUTHOR(S): Ullmann, H.; Teske, K.; Kozlov, F. A.; Kuznetsov, E. K.
CORPORATE SOURCE: Zentralinst. Kernforsch., DAW, Dresden, Ger. Dem. Rep.
SOURCE: Kernenergie (1977), 20(3), 80-2
CODEN: KERNAQ; ISSN: 0023-0642
DOCUMENT TYPE: Journal
LANGUAGE: German
AB The measurement of cell potentials in a solid-electrolyte cell, for determining the O activity in Na, was used to determine the O-H interaction coeffs. in dilute solns. in Na. The activity of dissolved O in the presence of H in Na is decreased. At concentration ratios as they appear in the operation of Na loops, the empirical approximation formula: log fOH= -0.06cH ± 0.05 (for T = 623 K, cH in ppm) holds.

L5 ANSWER 3 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:481546 CAPLUS
DOCUMENT NUMBER: 135:246671
TITLE: Evaluation of new methods for the monitoring of alkalinity, dissolved hydrogen and the microbial community in anaerobic digestion
AUTHOR(S): Bjornsson, L.; Murto, M.; Jantsch, T. G.; Mattiasson, B.
CORPORATE SOURCE: Department of Biotechnology, Lund University, Lund, SE-222100, Swed.
SOURCE: Water Research (2001), 35(12), 2833-2840
CODEN: WATRAG; ISSN: 0043-1354
PUBLISHER: Elsevier Science Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB New methods for spectrophotometric alkalinity measurement, dissolved H monitoring and for obtaining a fingerprint of the microbial community were evaluated as tools for process monitoring in anaerobic digestion. The anaerobic digestion process was operated at organic loading rates of 1.5, 3.0 and 4.5 g volatile solids/L-day and subjected to pulse loads of carbohydrate, lipid, protein and a mixed sludge substrate. The spectrophotometric alkalinity monitoring method showed good agreement with traditional titrimetric alkalinity monitoring and has the advantage of being easy to modify to online monitoring applications. The online monitoring of dissolved H gave valuable information about approaching process overload and can be a good complement to the conventional monitoring of volatile fatty acids. Changing process conditions were also reflected in the microbial fingerprint that could be achieved by partitioning in two-phase systems. These methods showed potential for application in increasing our understanding of the anaerobic digestion process as well as for being applicable for monitoring in the complex environment of full-scale anaerobic digestion processes.
REFERENCE COUNT: 37

L5 ANSWER 4 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:215988 CAPLUS
DOCUMENT NUMBER: 134:313546
TITLE: Utilization of a palladium-metal oxide semiconductor (Pd-MOS) sensor for on-line monitoring of dissolved hydrogen in anaerobic digestion
AUTHOR(S): Bjornsson, Lovisa; Hornsten, Erik Gunnar; Mattiasson, Bo
CORPORATE SOURCE: Department of Biotechnology, Lund University, Lund, SE-221 00, Swed.
SOURCE: Biotechnology and Bioengineering (2001), 73(1), 35-43
CODEN: BIBIAU; ISSN: 0006-3592
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The use of a hydrogen-sensitive palladium-metal oxide semiconductor (Pd-MOS) sensor in combination with a membrane for liquid-to-gas transfer for the detection of dissolved hydrogen was investigated. The system was evaluated with known concns. of dissolved hydrogen in water. The lowest concentration detected with this set-up was 160 nM. The method was applied to monitoring of a laboratory-scale anaerobic digestion process employing mixed sludge containing mainly food/industrial waste. Pulse loads of glucose were added to the system at different levels of microbial activity, and the microbial status of the culture was reflected in the dissolved hydrogen response. Simultaneous headspace hydrogen measurements were performed, and at the lower levels of dissolved hydrogen no corresponding headspace hydrogen could be detected. When glucose was added to a resting culture the dissolved hydrogen response was rapid and the first response could be detected 9 min after addition of glucose, whereas headspace hydrogen concns. increased only after 80 to 110 min. This indicates limitations in the liquid-to-gas hydrogen transfer and illustrates the importance of hydrogen monitoring in the liquid The sensor system developed is flexible, the membrane is easily replaceable, and the probe for liquid-to-gas hydrogen transfer can be adjusted easily to large-scale applications. REFERENCE COUNT: 36

L5 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1997:755978 CAPLUS
DOCUMENT NUMBER: 128:52532
TITLE: "Dissolved hydrogen concentration as an online control parameter for the automated operation and optimization of anaerobic digesters"
AUTHOR *Cord-Ruwisch, Ralf; Mercz, Tom I.; Hoh, Choon-Yee; Strong, Grahame E.*
CORPORATE SOURCE: School of Biological and Environmental Sciences, Murdoch University, Perth, 6150, Australia
SOURCE: **Biotechnology and Bioengineering (1997), 56(6), 626-634**
CODEN: BIBIAU; ISSN: 0006-3592
PUBLISHER: John Wiley & Sons, Inc.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The use of dissolved hydrogen as an early warning signal of digester failure and a control parameter to operate anaerobic digesters was investigated. A sensitive online method was developed for measuring trace levels of dissolved hydrogen in a semipermeable membrane situated within the biomass of a 1-L laboratory anaerobic digester, using trace reduction gas anal. At normal operating conditions, the dissolved hydrogen partial pressure (2 to 8 Pa) was found to be linearly correlated with the loading rate of the digester and was a sensitive indicator of the effect of shock loads as well as gradual overloading. An increase in hydrogen partial pressure above a critical concentration of 6.5-7 Pa indicated the initial stage of digester overloading (i.e., volatile fatty acid accumulation). A H2-based computer control system, using a critical hydrogen partial pressure of 6.5 Pa as the setpoint, was found to be effective for the safe operation of a laboratory digester close to its maximum sustainable loading rate. The existence of a relationship between hydrogen level and organic loading rate was also confirmed on a 600-m3 industrial digester, with digester overloading occurring at hydrogen concns. above 7 Pa. The results suggest that the dissolved hydrogen concentration is capable of being a sensitive online parameter for the automated management of anaerobic digesters near their maximum sustainable loading capacity. REFERENCE COUNT: 30

L5 ANSWER 8 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:1007852 CAPLUS
DOCUMENT NUMBER: 124:65338
TITLE: Impact of liquid-to-gas hydrogen mass transfer on substrate conversion efficiency of an upflow anaerobic sludge bed and filter reactor
AUTHOR(S): Frigon, Jean-Claude; Guiot, Serge R.
CORPORATE SOURCE: Natl. Res. Council, Biotechnol. Res. Inst., Montreal, QC, Can.
SOURCE: Enzyme and Microbial Technology (1995), 17(12), 1080-6
CODEN: EMTED2; ISSN: 0141-0229
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Efficient anaerobic degradation may be completed only under low levels of dissolved H in the liquid surrounding the microorganisms. This restraint can be

intensified by the limitations of liquid-to-gas H mass transfer, which results in H accumulation in the bulk liquid of the reactor. Dissolved H was an interesting parameter for reactor monitoring by showing a good correlation with short-chain volatile fatty acid concentration, namely propionate, which was not the case for the H partial pressure. Biogas recycle was performed in a upflow anaerobic sludge bed and filter reactor. The effect of varying the ratio of recycled-to-produced gas from 2:1 (9 L/L reactor-day) to 8:1 (85 L/L reactor-day) were studied. By increasing the liquid-gas interface with biogas recycling, the dissolved H concentration could be lowered from 1.1 to 0.4 <SYM109>M. Accordingly, the H surpersatn. factor was also reduced, leading to an important improvement of the H mass transfer rate, which reached 20.86/h (±9.79) at a 8:1 gas recycling ratio, compared to 0.72/h (±0.24) for the control experiment Gas recycling also lowered the propionate concentration from 655 to 288 mg/L and improved the soluble COD removal by 10-15%. The main problem encountered was the shorter solids retention time, which could lead to undesirable biomass washout at high gas recycling ratio. This could be circumvented by improving reactor design to reduce turbulence within the biomass bed.

L5 ANSWER 10 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1995:379587 CAPLUS
DOCUMENT NUMBER: 122:141409
TITLE: An in situ dissolved-hydrogen probe for monitoring anaerobic digesters under overload conditions
AUTHOR(S): Strong, G. E.; Cord-Ruwisch, R.
CORPORATE SOURCE: School of Biology and Environmental Science, Murdoch University, Perth, 6150, Australia
SOURCE: Biotechnology and Bioengineering (1995), 45(1), 63-8
CODEN: BIBIAU; ISSN: 0006-3592
PUBLISHER: Wiley
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The concentration of diat. H in the liquid phase of an anaerobic digester was used to determine the onset of digester failure induced by substrate overloading. The construction of an inexpensive probe to measure dissolved H, having a partial pressure detection limit of 30 Pa, is described. An increase in the partial pressure of dissolved H, from <30 to 400 Pa, was observed when the D-glucose concentration in a laboratory-scale digester was increased rapidly to 10mM. However, when the digester was gradually overloaded, an increase in the dissolved H partial pressure was not observed until after the digester failed. The accumulation of volatile fatty acids and digester failure were observed at dissolved H partial pressures <30 Pa.

L5 ANSWER 11 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1991:509815 CAPLUS
DOCUMENT NUMBER: 115:109815
TITLE: Measurement of dissolved hydrogen in an anaerobic digestion process by a membrane-covered electrode

AUTHOR(S): Kuroda, Kenji; Silveira, Roberto Gaiger; Nishio, Naomichi; Sunahara, Hiroshi; Nagai, Shiro
CORPORATE SOURCE: Fac. Eng., Hiroshima Univ., Higashi-Hiroshima, 724, Japan
SOURCE: Journal of Fermentation and Bioengineering (1991), 71(6), 418-23
CODEN: JFBIEX; ISSN: 0922-338X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Dissolved H2 in an anaerobic digestion process was continuously measured by a voltammetric membrane electrode which consisted of a Pt-Pt black and Ag-AgCl covered FEP membrane with 0.1M KCl and 0.1M HCl. This sensor showed high reliability and sensitivity (detection limit 50 nM) in distilled water. The sensor was not affected by several compds. in the anaerobic digestion media (inorg. salts, acetate, and propionate) except for S2-. The indication in a sample containing 1.56 mM S2- corresponded to that of 0.26 <SYM109>M dissolved H2. The sensor was also applied to measure the dissolved H2 in a laboratory-scale anaerobic reactor, and the dissolved H2 was continuously monitored for 565 h. The sensor was calibrated every 120 h, and the output signal was very stable during this period. The dissolved H2-concentration ranged 0.5-3 <SYM109>M and H2 partial pressure 2-7 Pa in the gas phase. A good correlation between theor. values calculated with H2 partial pressure and the output signals was recognized. The actual dissolved H2 concentration was .apprx.60-fold higher than the theor. values calculated with H2 partial pressure.

L5 ANSWER 12 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1990:156598 CAPLUS
DOCUMENT NUMBER: 112:156598
TITLE: "Continuous measurement of dissolved hydrogen in an anaerobic reactor using a new hydrogen/air fuel cell detector"
AUTHOR(S): *Pauss, A.; Samson, R.; Guiot, S.; Beauchemin, C.*
CORPORATE SOURCE: Biotechnol. Res. Inst., Natl. Res. Counc. Canada, Montreal, QC, H4P 2R2, Can.
SOURCE: **Biotechnology and Bioengineering (1990), 35(5), 492-501**
CODEN: BIBIAU; ISSN: 0006-3592
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A miniature fuel cell, using a hydrophobic Teflon membrane, designed to continuously measure dissolved H2 in nonbiol. media, was tested for use in anaerobic digestion conditions. In water, this detector responds quickly and efficiently to variation of H2 concentration in the range 80-770 nM. The media used and the metabolites or products found in anaerobic digestion media, i.e. inorg. C and phosphate buffers, formate, acetate, and dissolved CH4, did not interfere with the signal of the detector cell. Dissolved H2S did not poison the cell but was detected. In spite of the detector's high sensitivity to H2 (.apprx.21,000-fold higher for H2 than for H2S), interferences can occur in media containing high S2- levels. In a methanogenic reactor, the detector cell response to dissolved H2 was fast and reliable with time. The observed values ranged from 2 to 3.5 <SYM109>M. Dissolved H2 concns. were 40-70-fold higher than values calculated

from measured H2 partial pressures and Henry's coefficient, suggesting a limitation of the process in the H2 transfer from the liquid to the gaseous phase.

L5 ANSWER 13 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1989:26577 CAPLUS
DOCUMENT NUMBER: 110:26577
TITLE: Methanogenesis in mesophilic and thermophilic anaerobic digesters: monitoring and control based on dissolved hydrogen
AUTHOR(S): Whitmore, T. N.; Jones, G.; Lazzari, M.; Lloyd, D.
CORPORATE SOURCE: Dep. Microbiol., Univ. Coll., Cardiff, CF2 1TA, UK
SOURCE: Mass Spectrom. Biotechnol. Process Anal. Control, [Proc. Workshop] (1987), Meeting Date 1986, 143-62. Editor(s): Heinzle, Elmar; Reuss, Matthias. Plenum: New York, N. Y.
CODEN: 56IXAC
DOCUMENT TYPE: Conference
LANGUAGE: English
AB Laboratory-scale expts. suggest that the control of digester performance based on the concentration of the dissolved H provides a valuable approach to optimize the methanogenic rates by using a single process variable. A membrane inlet quadrupole mass spectrometer was used to monitor and control mesophilic and thermophilic laboratory scale biomethanation systems. The thermophilic (55°) and mesophilic (37°) anaerobic digesters used a common source of glucose-containing culture samples. The retention time of both units was 10 days and the original inoculum was pig slurry.

L5 ANSWER 14 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1988:128271 CAPLUS
DOCUMENT NUMBER: 108:128271
TITLE: Influence of pH on microbial hydrogen metabolism in diverse sedimentary ecosystems
AUTHOR(S): Goodwin, Steve; Conrad, Ralf; Zeikus, J. Gregory
CORPORATE SOURCE: Dep. Bacteriol., Univ. Wisconsin, Madison, WI, 53706, USA
SOURCE: Applied and Environmental Microbiology (1988), 54(2),590-3
CODEN: AEMIDF; ISSN: 0099-2240
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Hydrogen transformation kinetic parameters were measured in sediments from anaerobic systems covering a wide range of environmental pH values to assess the influence of pH on hydrogen metabolism The concns. of dissolved hydrogen were measured and hydrogen transformation kinetics of the sediments were monitored in the laboratory by monitoring hydrogen consumption progress curves. The hydrogen turnover rate consts. (kt) decreased directly as a function of decreasing sediment pH, and the maximum hydrogen uptake velocities (Vmax) varied as a function of pH within each of the trophic states. Conversely, the half-saturation concns. (Km) were independent of pH. The steady-state hydrogen concns. were at least 2 orders of magnitude lower than the half-saturation consts. for hydrogen uptake. Dissolved hydrogen concns. were at least

fivefold higher in sediments from eutrophic systems than from oligotrophic and dystrophic systems. The rates of hydrogen production determined from the assumption of steady state decreased with sediment pH. These data indicate that progressively lower pH values inhibit microbial hydrogen-producing and -consuming processes within sedimentary ecosystems.

L5 ANSWER 15 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1986:526107 CAPLUS
DOCUMENT NUMBER: 105:126107
TITLE: Polarographic apparatus for continuous monitoring of dissolved hydrogen and its application to strictly anaerobic processes
AUTHOR(S): Smigan, Peter; Novak, Jan; Greksak, Miroslav
CORPORATE SOURCE: Inst. Exp. Vet. Med., Kosice, Czech.
SOURCE: Chemicke Listy (1986), 80(6), 647-51
CODEN: CHLSAC; ISSN: 0009-2770
DOCUMENT TYPE: Journal
LANGUAGE: Slovak
AB The elec. circuit of a polarog. analyzer for H2 monitoring, especially in bacterial suspensions producing or consuming H2, is given. The analyzer comprises a source of polarization voltage for preadaptation of a classical Clark electrode, preadaptation oscillator, source of the operation polarization voltage, amplifier of the electrode signal, and a stabilized d.c. source. The 2-stage preadaptation gave electrode signal stability for <SYM179>1 mo in the monitoring of >220 nmol H2/L. The regeneration of an electrode deactivated in the presence of Na2S is described.

L5 ANSWER 16 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1986:192267 CAPLUS
DOCUMENT NUMBER: 104:192267
TITLE: Possibility of monitoring anaerobic digestion by measurement of methane and hydrogen dissolved in solutions
AUTHOR(S): Lazzari, Massimo
CORPORATE SOURCE: Ist. Ing. Agrar., Milan, Italy
SOURCE: Acqua & Aria (1985), (6), 543-50
CODEN: AQARDW; ISSN: 0391-5557
DOCUMENT TYPE: Journal
LANGUAGE: Italian
AB Membrane inlet mass spectrometry was used to directly and simultaneously monitor liquid phase H, and CH4 [74-82-8] with samples from laboratory mesophilic (37°) and thermophilic (55°) anaerobic digesters supplied with a glucose [50-99-7]-based medium. The addition of a low (10 mM) concentration of glucose or short-chain fatty acids to the samples in the mass spectrometry vessel did not result in a detectable increase in dissolved H. The addition of higher concns. of these led to increased dissolved H levels associated with decreasing dissolved CH4 and pH. The possibility of using the H concentration as a control parameter only in laboratory tests is suggested, because of economic reasons.

L5 ANSWER 17 OF 17 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1981:152799 CAPLUS
DOCUMENT NUMBER: 94:152799
TITLE: "Method for measuring dissolved hydrogen in anaerobic ecosystems: application to the rumen"
AUTHOR(S): *Robinson, Joseph A.; Strayer, Richard F.; Tiedje, James M.*
CORPORATE SOURCE: Dep. Microbiol. Public Health, Michigan State Univ., East Lansing, MI, 48824, USA
SOURCE: **Applied and Environmental Microbiology (1981), 41(2), 545-8**
CODEN: AEMIDF; ISSN: 0099-2240
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A method of transferring dissolved H2 to a CO2 headspace and then absorbing out the CO2 to concentrate the H2 before gas chromatog. anal. was developed to measure low concns. of dissolved H2. A detection limit of 10 pmol H2 mL H2O was achieved. When used to monitor H2 changes in a bovine rumen, a 10-fold increase in H2 was noted 1 h after feeding and then declined rapidly to the normal steady-state concentration of 1 <SYM109>M.

L8 ANSWER 5 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1984:427979 CAPLUS
DOCUMENT NUMBER: 101:27979
TITLE: "A new dissolved hydrogen detector"
AUTHOR(S): *Hale, John M.*
CORPORATE SOURCE: Orbisphere Lab., Geneva, Switz.
SOURCE: **Proceedings - International Water Conference, Engineers' Society of Western Pennsylvania (1983), 44th, 460-5**
CODEN: PWWPAY; ISSN: 0099-409X
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Dissolved H determination is based on a membrane-isolated amperometric sensor which has fast response, wide measurement range, excellent reproducibility and stability, freedom from phys. and chemical interference, and easy maintenance. It appears well qualified as a H sensor for in-line process control purposes in the power generation, and similar industries.

L8 ANSWER 6 OF 6 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1977:150001 CAPLUS
DOCUMENT NUMBER: 86:150001
TITLE: Amperometric determination of hydrogen dissolved in water
AUTHOR(S): Faizullin, E. A.; Bystritskii, A. L.; Bardin, V. V.
CORPORATE SOURCE: Leningr. Tekhnol. Inst. im. Lensoveta, Leningrad, USSR
SOURCE: Izvestiya Vysshikh Uchebnykh Zavedenii, Khimiya I Khimicheskaya Tekhnologiya (1976), 19(12), 1865-7
CODEN: IVUKAR; ISSN: 0579-2991
DOCUMENT TYPE: Journal

LANGUAGE: Russian
AB An amperometric analyzer for continuous determination of H in H2O is based on the measurement of the limiting current of H oxidation on a thin-layer Pt indicator anode at 0.84-1.04 V vs. normal H electrode. The interference of >1 <SYM109>g O/L was eliminated by passing the sample through an electron-ion-exchanger column. A 0.05M H2SO4-0.002M CuSO4 supporting electrolyte was added before the sample entered the flow-through amperometric cell. An auxiliary Cu cathode was used. The calibration curve was linear for 0.3 <SYM109>g-1.6 mg H/L. The relative error is <SYM163>3% for the determination of 0.2 mg H/L. The concentration of H in H2O or steam condensate is an indicator of corrosion in power plants.

L11 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 2001:238524 CAPLUS
DOCUMENT NUMBER: 134:315771
TITLE: Dissolved hydrogen measurements at a permeable zero-valent iron reactive barrier
AUTHOR(S): Sorel, Dominique; Warner, Scott D.; Longino, Bettina L.; Honniball, Jim H.; Hamilton, Lisa A.
CORPORATE SOURCE: Geomatrix Consultants, Oakland, CA, 94612, USA
SOURCE: Preprints of Extended Abstracts presented at the ACS National Meeting, American Chemical Society, Division of Environmental Chemistry (2001), 41(1), 1175-1180
CODEN: PEACF2; ISSN: 1524-6434
PUBLISHER: American Chemical Society, Division of Environmental Chemistry
DOCUMENT TYPE: Journal; (computer optical disk)
LANGUAGE: English
AB The dissolved H2 concns. as a measure of Fe corrosion were investigated in groundwater where a zerovalent Fe permeable reactive barrier (PRB) was in place for >5 yr; the general site monitoring results are also presented. VOCs are passively removed from site groundwater before flowing down-gradient and off-site. Treatment of the VOCs was not affected by seasonal water level fluctuations. The effectiveness of the treatment process do not appear to have decreased as a result of the precipitation of inorg. species in the up-gradient pea gravel zone. The distribution of H2 concns. was consistent with the distribution of other general water quality parameters monitored at the site (e.g. redox, O2, inorg. parameters.). The high concns. of dissolved H2 within the PRB indicated that the corrosion process remained strong >6 yr after PRB installation.
REFERENCE COUNT: 5

L11 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1984:167373 CAPLUS
DOCUMENT NUMBER: 100:167373
TITLE:"Apparatus for measuring the content of hydrogen dissolved in molten metal'
INVENTOR(S): *Terai, Shiro; Sato, Shiro; Kato, Sakae; Imai, Masaya; Inumaru, Susumu; Yoshida, Masahiro*
PATENT ASSIGNEE(S): Sumitomo Light Metal Industries, Ltd. , Japan

SOURCE: Ger. Offen., 26 pp.
CODEN: GWXXBX
DOCUMENT TYPE: Patent
LANGUAGE: German
PATENT NO. KIND DATE APPLICATION NO. DATE
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DE 3303122 A1 19840119 DE 1983-3303122 19830131
DE 3303122 C2 19860807
JP 59012348 A2 19840123 JP 1982-122386 19820714
JP 02037984 B4 19900828 **US 4454748** A 19840619 US 1982-426138
19820928 GB 2123957 A1 19840208 GB 1983-562 19830110
GB 2123957 B2 19851211 FR 2556098 A1 19850607 FR 1983-19454
19831206 FR 2556098 B1 19900511
PRIORITY APPLN. INFO.: JP 1982-122386 19820714
AB An inert gas is bubbled through the molten metal to remove H. The H content of the carrier gas is then determined by measuring the elec. resistance of the gaseous mixture The apparatus is especially useful for determination of H in molten Al and Al alloys.

L12 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1993:15545 CAPLUS
DOCUMENT NUMBER: 118:15545
TITLE: "An analysis of factors affecting the response of hydrogen determination techniques for aluminum alloys"
AUTHOR(S): *Depuis, Claude; Wang, Zhou; Martin, Jean Pierre; Allard, Christian*
CORPORATE SOURCE: Arvida Res. Dev. Cent., Alcan Int. Ltd., Jonquiere, QC, Can.
SOURCE: **Light Metals (Warrendale, PA, United States) (1992) 1055-67**
CODEN: LMPMDF; ISSN: 0147-0809
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The control of dissolved hydrogen levels in molten aluminum alloys is an integral part of meeting quality control requirements in the modern aluminum cast shop. Of the more than 20 reported techniques available to measure hydrogen levels in aluminum alloys, only a few are widely used for quant. detns. They are: the AISCAN and Telegas/Telegas II analyzers used for detns. in molten metal and the laboratory-based Hot Vacuum Subfusion Extraction and Nitrogen Carrier Fusion techniques for anal. of solidified samples. A detailed anal. of factors affecting the response of each of these techniques has been undertaken to explain differences observed in reported hydrogen values. While measurements in molten metal with AISCAN and Telegas normally agree within 10%, these values can be up to 30% higher than those obtained from solidified samples analyzed by the laboratory techniques. Controlled atmospheric expts. have been performed to study the behavior of hydrogen during the solidification associated with solid samples, as well as the response of AISCAN and Telegas probes in molten aluminum. A number of instrumental factors affecting the measurements are also discussed based on these exptl. tests.

L12 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1986:115756 CAPLUS
DOCUMENT NUMBER: 104:115756
TITLE: "Chromatographic determination of gases dissolved in water"
AUTHOR(S): *Gorshkov, A. I.; Gumerov, M. F.; Leont'eva, E. I.; Moskvin, L. N.*
CORPORATE SOURCE: Pac. Ocean Inst. Bioorg. Chem., Vladivostok, USSR
SOURCE: **Zhurnal Analiticheskoi Khimii (1986), 41(1), 146-51**
CODEN: ZAKHA8; ISSN: 0044-4502
DOCUMENT TYPE: Journal
LANGUAGE: Russian
AB A method for the determination of O, N, and H dissolved in water uses conventional chromatog. apparatus and the liquid-gas distribution chromatog. for gas separation from the water. The stationary phase used is a gas applied to the surface of porous polytetrafluoroethylene [9002-84-0]. The detection limits are 4, 7, and 10 <SYM109>g/kg for O, N, and H, resp., using He as the gas carrier and 70, 90, and 0.06 <SYM109>g/kg, resp., using Ar as the gas carrier. The detection error is O.

L12 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1983:415591 CAPLUS
DOCUMENT NUMBER: 99:15591
TITLE: Electrochemical devices to detect and measure dissolved hydrogen
AUTHOR(S): Belanger, Guy; Missout, Gilles; Gibeault, Jean Pierre
CORPORATE SOURCE: Inst. Rech. Hydro-Quebec, Varennes, QC, Can.
SOURCE: New Materials & New Processes (1983), 2, 484-8
CODEN: NMNPD2; ISSN: 0742-3993
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The main features of the Hydran 101 and Hydran 201 instruments (based on diffusion of dissolved H through Teflon membranes and its anodic oxidation at fuel-cell type electrodes) are briefly summarized and new applications of these and similar devices are illustrated for monitoring H in transformer oils, D in heavy-water moderated in nuclear reactors, etc. Thus, an electrochem. detector with Pt-black electrodes can be used for determining CO and H in air by gas chromatog. with He as the carrier gas.

L12 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1969:528537 CAPLUS
DOCUMENT NUMBER: 71:128537
TITLE: Improved methods for determining the concentration of hydrogen dissolved in a condensate
AUTHOR(S): Kokoshkin, I. A.
CORPORATE SOURCE: USSR
SOURCE: DACWF Title (1969), No. 3, 177-81
CODEN: VVRLAM
DOCUMENT TYPE: Journal
LANGUAGE: Russian

AB Expts. with the intermittently operating A. A. Avdeev-type chromatographic apparatus (1966) for determining H resulting from corrosion under normal operating conditions (when the H concentration in the water and in the steam is 1-10 <SYM103>/kg.) show that the results may be <SYM163>50% too low. The reason is found in partial absorption of H by surface active material, which adheres to the walls of the bubble-through flask. The surface adsorption is lower at higher H concns. This phenomenon is fully compensated in continuous analyzers. The author suggests an improved method of chromatographic determination of dissolved H, based on utilization of continuous contact device, where air is the gaseous carrier. Standardized activated charcoal K-7 is used as an adsorbent. The anal. is made within 90 sec. with very high accuracy. The H is produced by corrosion in boiler systems and water may be in the condensate (which will be used for feed water) and in the steam.

L15 ANSWER 43 OF 86 CAPLUS COPYRIGHT 2004 ACS on STN
ACCESSION NUMBER: 1978:15542 CAPLUS
DOCUMENT NUMBER: 88:15542
TITLE: 'Determination of hydrogen in steels'
INVENTOR(S): *Endo, Yoshihide; Sakao, Noritaka*
PATENT ASSIGNEE(S): Kawasaki Steel Corp., Japan
SOURCE: Jpn. Kokai Tokkyo Koho, 3 pp.
CODEN: JKXXAF
DOCUMENT TYPE: Patent
LANGUAGE: Japanese
PATENT NO. KIND DATE APPLICATION NO. DATE
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JP 52091495 A2 19770801 JP 1976-7439 19760128
JP 56030821 B4 19810717
PRIORITY APPLN. INFO.: JP 1976-7439 19760128
AB The H present in steel was determined from the sum of the H released in heating the steel sample to 40-850° to release sorbed H2O and the residual H obtained by a conventional technique for determining dissolved H. The method is more accurate than conventional methods because, by preheating, errors introduced by water were eliminated, and by measuring the amount of H released during preheating, errors owing to sorbed H are eliminated. Moreover, the determination is rapid (10-15 min) compared to the heating method with given comparable accuracy but a determination time of 50-60 min. The more commonly used graphite crucible technique is rapid (6-10 min) but gives poor accuracy owing to the water gas reaction taking place between water and the graphite crucible.